



**National Officers Academy**  
**Mock Exams CSS-2022**  
**April 2022(Final Mock)**  
**COMPUTER SCIENCE, PAPER-II**

<b>TIME ALLOWED: THREE HOURS</b>	<b>PART-I (MCQS)</b>	<b>MAXIMUM MARKS = 20</b>
<b>PART-I(MCQS): MAXIMUM 30 MINUTES</b>	<b>PART-II</b>	<b>MAXIMUM MARKS = 80</b>

**NOTE:**

- i. **Part-II** is to be attempted on the separate **Answer Book**.
- ii. Attempt **ONLY FOUR** questions from **PART-II**, by selecting **TWO** questions from **EACH SECTION**. **ALL** questions carry **EQUAL** marks.
- iii. All the parts (if any) of each Question must be attempted at one place instead of at different places.
- iv. Write Q. No. in the Answer Book in accordance with Q. No. in the Q. Paper.
- v. No Page/Space be left blank between the answers. All the blank pages of Answer Book must be crossed.

**SUBJECTIVE PART — PART-II**

**Question 2:**

- (a) Differentiate between RISC and CISC. Which instruction set would you prefer for a machine learning machine. (8)
- (b) What is the difference between multi-core and multi-processor systems? (6)
- (c) What is the difference between an address bus and a data bus? Why are two different buses even required? (6)

**Question 3:**

- (a) What is packet switching and why is it generally used over circuit switching in the context of the internet. (8)
- (b) Elaborate the OSI model. (8)
- (c) What are web caches? How do they help reduce load on high-level servers? (4)

**Question 4:**

- (a) Discuss the evolution of operating systems and how they have become increasingly generalized. (8)
- (b) Explain the process of virtual memory management in detail. (6)
- (c) A programmer writing a web server prefers threads over processes. Explain why he prefers writing thread code instead of process code. (6)

**Section B**

**Question 5:**

- (a) What are functional dependencies and how are they linked to normalization? (6)
- (b) What is the difference between physical data independence and logical data independence? (4)
- (c) Construct an E-R diagram for a bank with a set of clients, a set of branches and a set of accounts for the clients. Associate with each client a log of the various transactions conducted. (10)

**Question 6:**

- (a) Define the noise models in digital image processing and analyze their differences. (8)
- (b) What is skeletonization? (4)
- (c) Differentiate between line detection, boundary detection and edge detection? (8)

**Question 7:**

- (a) Why is requirement engineering important for designing a web application? (6)
- (b) What is the difference between HTML and XHTML? (6)
- (c) What is the difference between validation and verification in software engineering? (8)

**Question 8:**

- (a) Discuss Agile and Water Fall methodologies in the context of web application development. (8)
- (b) A Medium advertising company is reviewing its IT requirements and is considering using a Cloud solution for web applications as opposed to investing in existing infrastructure. Is this an appropriate strategy? Justify your answer using an example. (6)
- (c) Write short notes on **two** of the following three: (4)
  - 1. Cryptocurrency
  - 2. Servlet
  - 3. SMTP

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*Best of Luck for CSS-2022*